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TI Case hardening the edge of a press die - by applying high frequency electric current.
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The edge of a press die (1,2) to be used for bending, punching or press forming a steel sheet is case hardened to improve its wear resistance as follows.

The edge of an upper die (1) to be hardened is arranged spaced a small gap apart from the edge of a lower die (2). These edges face each other so that the parts to be quench hardened overlap each other.

An electric conductive electrode (3,4,5) is fixed to one side of each press die, and another electrode (6,7) is fixed to the other side. The electrode (6) is insulated from the electrode (7) by a sheet (10). Hence, an electric channel (6-8-1-4-3-5-2-9-7) is formed. A high-frequency electric current is applied to the channel, while using the edge parts of the upper and lower dies as a part of a high-frequency coil. Thus, the edge parts of the dies are case hardened by high-frequency quenching at the same time.

USE/ADVANTAGE - Useful for quenching the edge of a press die. Since the edge itself is utilised as a part of a high-frequency coil, the HF quenching is facilitated without the need to use HF coil of complex configuration.